

SECRET**ENG MC-****12 November 1958****Chief, Special Programs Staff, OC****Chief, Engineering Staff, OC****Audio Oscillators, IN-1 and IN 9**

REF : Memo ENG 8-491 dated 30 April 1958
Memo SPM 8-765 dated 21 August 1958

1. A review of R&D Laboratory fabrication commitments indicates that we have not as yet received an operational evaluation report on the IN-1 oscillator. To facilitate our scheduling please review your requirement for this oscillator in terms of Eng 8-491 and advise as to the suitability of the prototype submitted and, if found acceptable, the quantity desired.

2. With reference to the temperature vs frequency stability characteristic of the IN-9 oscillator (SPM 8-765), previous temperature tests and design experience with this circuit and the unijunction transistor indicate that $\pm 2\%$ is about as good as can be expected on frequency stability. Although detailed temperature data has not been run for the unit over the reduced range of -20°C to $+40^{\circ}\text{C}$, previous tests over the wider range from -40°C to $+55^{\circ}\text{C}$ did not show a significant stability improvement in the restricted range. In addition, the tolerance spread of current production unijunction transistors is far too great to support firm stability predictions on the basis of small sample testing. The unijunction transistors now used are not straight production run items but rather are purchased with specified tolerances on certain parameters. Even so, the long term stability of units so purchased cast doubt on the advisability of seeking further stability improvement through transistor selection. It therefore appears that the stability economically feasible in the present IN-9 circuit configuration is $\pm 2\%$. On the basis of this information, please advise as to the suitability of the unit and, if suitable, the number of units required.

DOC	2	DATE	4-12-80	608632
ORIG COMP				
ORIG GLASS	5		1	C
JUST	22	NEW	20 10	100

25X1

R&D/Lab/NCP/jcm (12 November 1958)**Distribution: Original and 1 - Addressee**

- 1 - Lab Subject
- 1 - OC-E Chrono
- 1 - R&D Chrono
- 1 - Dev/s

*filed in 2510***SECRET**